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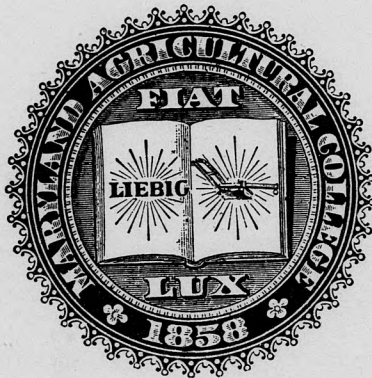
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R. W. SILVESTER, ... **President.**

Edited by H. B. McDONNELL, Professor of Chemistry.



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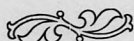
CHEMICAL DEPARTMENT

OF THE

MARYLAND AGRICULTURAL COLLEGE.



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The "Quarterly," containing the results of the inspection and analysis of fertilizers and feeding stuffs, is sent free to all residents of Maryland requesting the same.

Address:

CHEMICAL DEPARTMENT,

MARYLAND AGRICULTURAL COLLEGE,

COLLEGE PARK, MD.

RESULTS OF TESTS OF SAMPLES OF GRASS AND FORAGE
CROP SEEDS COLLECTED BY THE CHEMICAL DE-
PARTMENT OF THE MARYLAND AGRICULTURAL
COLLEGE DURING THE YEAR 1903.

Tests by Mr. E. Brown, Botanist in Charge of Seed Laboratory, Bureau of Plant Industry, United States Department of Agriculture.

The importance of good seed can hardly be overestimated. It may contain inert matter, which is objectionable, not only on account of the price paid for it, but because the amount of seed applied is less than the amount intended. The seed may contain foreign seeds and weed seeds, which may give rise to serious pests. It makes little difference to the farmer whether these are present by accident, or have been added intentionally. Finally, the pure seed may be of poor quality, due to age, improper storage or improper treatment in harvesting, and be partially, or even wholly, inert. Several samples included in the following table will be seen to have been so nearly worthless that one might just as well have sown so much sand. We have no doubt that this was unknown to those who sold the seed.

The samples for these tests were obtained by our fertilizer inspectors while on their rounds sampling fertilizers, during the spring and fall seasons of 1903. As a rule, one pound of the seed was purchased from the stock of the dealer. The tests were all made by Mr. E. Brown, botanist in charge of the Seed Laboratory, Bureau of Plant Industry, United States Department of Agriculture. The results were ready for publication in May, last, but could not be published till now because both the May and the August Quarterlies were needed for our regular inspection work.

The headings in the table are so plain that little explanation will be necessary. The first column on each page contains the laboratory test number; this is duplicated on the opposite pages to avoid confusion in case the proper lines on the opposite pages do not come exactly opposite, as will often occur in binding, as each 16 pages of the Bulletin are printed on one sheet, which is afterward folded, stitched and the edges trimmed. The second column contains the botanical names of the seed; the next, the popular or common name under which it was sold. The fourth column contains the name and address of the seller, the latter, of course, being the place where the sample was obtained. The second column on the right hand pages was intended to be the price per 100 pounds of the seed; but in many cases it appears to be 100 times the price paid for 1 pound, which is, of course, more than the price per 100 pounds. The third, fourth and fifth columns contain respectively the pure seed, the inert matter and the weed seeds and adulterants—all in per cent. by weight. The three should together make 100 per cent. The next, or sixth, column, shows the number of weed seeds per pound of the seed as purchased. Note the enormous number in many of the samples. The next column shows the per cent. of pure seed that will germinate, which number (when expressed as a decimal fraction, instead of per cent.) multiplied by the per cent. of pure seed gives the result in the next column—the first column of black figures—which shows the per cent. of pure seed that will grow as calculated on the sample as purchased, and this number (expressed

as a decimal) divided into the price paid per 100 pounds, gives the result in the last column—the “actual cost of 100 pounds of pure seed that will grow.” In other words, the cost of perfect seed.

The samples of Kentucky bluegrass seed make, as a whole, a rather poor showing. It appears that this crop is frequently injured by heating when harvested. The following is from Bulletin 58, Bureau of Plant Industry, United States Department of Agriculture:

“Pieters and Brown have shown that the common methods employed in the harvesting and curing of *Poa pratensis* L. (Kentucky bluegrass) were such that the interior of the ricks reached a temperature of 130 to 140 degrees F., in less than sixteen hours, at which temperature the vitality of the seed is greatly damaged, and frequently entirely destroyed. The interior of one rick reached a temperature of 148 degrees F. in twenty-four hours, and the vitality had decreased from 91 per cent. to 3 per cent., as shown by the germination of samples taken simultaneously from the top and from the inside of the same rick.”

HOW TO TEST SEED (From Farmer's Bulletin No. 111).

“A simple germinating apparatus can be made from two ordinary plates and a piece of flannel cloth. Fold the cloth and lay it on one plate, placing the seeds between folds of the cloth, which should be moist, but not dripping. Cover the whole with another plate inverted, and stand in a warm place. If the test is made during cold weather, care must be taken to stand the plates where the temperature will not fall much below 50 degrees Fahrenheit at night, and will be about 65 or 70 degrees during the day time. The seeds that have sprouted should be removed every day, and the number recorded. When the test is completed the number of seeds sprouted can be compared with the number put in the test, and the percentage of germination determined. Clover seeds, cereals and timothy should be tested for about ten days, while other grass seeds need fourteen to thirty days.

“OPPORTUNITIES FOR TESTING BY EXPERTS.

“Purity tests and germination tests of grasses can be best made by experts. Many of the State Experiment Stations are prepared to test seeds, and the United States Department of Agriculture has a well-equipped laboratory for the same purpose. At this laboratory tests will be made free of charge, up to the limit of the facilities afforded, for all persons complying with the conditions. Full information concerning the seed is all that is asked. The name of the seller and the price paid must be given in every case, and it is desirable to know the year and place of growth, as well as any guaranty, or claim of grade, that may have been made for the seed. When this information accompanies the sample a report may be expected promptly.

“Dirty seed endangers the farm by introducing weed seeds. Low-priced seed is often poor seed, and it is then far more expensive than a high-priced good seed. The price of seed per pound or bushel is no accurate measure of its value; the true value is found by testing the sample, and thus determining the per cent. of good seed present. A statement of the percentages of purity and germination should be demanded whenever seeds are bought in quantity. As already stated, the Department of Agriculture is ready to test seeds, and will report promptly on their real value.”

THE SEED NOT ALWAYS AT FAULT.

It is probably not as generally known as it should be that fertilizers may injure the seed and retard or prevent germination. The effect is greatest when the fertilizer is in contact with the seed, and less when it is mixed with the soil. This is pointed out by Hicks, in Bulletin No. 24, Division of Botany, United States Department of Agriculture. His conclusions are:

(1) That muriate of potash and nitrate of soda, used as fertilizers in strengths of 1 per cent. or more, are very detrimental to the germination of seeds, whether applied directly or mixed with the soil.

(2) That fertilizers composed of phosphoric acid or lime are much less injurious to germination than sodium nitrate, or muriate of potash, and if not used in excess may be harmless.

(3) That commercial fertilizers should not be brought in direct contact with germinating seeds.

(4) The effect of treating seeds with chemicals before planting is no index to the action of those chemicals when applied as manures to the soil.

(5) That the chief injury to germination from chemical fertilizers is inflicted on the young sprouts after they leave the seed coat, and before they emerge from the soil, while the seeds themselves are injured only slightly, or not at all.

(6) It is highly improbable that potash, phosphoric acid, nitrogen or lime used as fertilizers actually favor germination.

The following publications of the United States Department of Agriculture, treating of seeds and seed testing, are available for distribution. Copies will be sent to any address on application to your Senators or Representatives in Congress, or to the Secretary of Agriculture, Washington, D. C.

"The Farmers' Interest in Good Seed," by A. J. Pieters; Farmers' Bulletin No. 111.

"Red Clover Seed; Information for Purchasers," by A. J. Pieters, Farmers' Bulletin No. 123.

"Alfalfa Seed," by Edgar Brown; Farmers' Bulletin No. 194.

"Red Clover Seed," by A. J. Pieters; Circular No. 24, Division of Botany.

"The Seed of Beardless Brome Grass," by A. J. Pieters; Circular No. 25, Division of Botany.

"The Germination of Seeds as Affected by Certain Chemical Fertilizers," by Gilbert H. Hicks; Bulletin No. 24, Division of Botany.

"The Seeds of Rescue Grass and Chess," by F. H. Hillam; Bulletin No. 25, pp. 1-4, Bureau of Plant Industry.

"Rules and Apparatus for Seed Testing," adopted by the Standing Committee on Methods of Seed Testing of the Association of American Agricultural Colleges and Experiment Stations; Circular No. 34 (revised), Office of Experiment Stations.

"Seed Selling, Seed Growing and Seed Testing," by A. J. Pieters, reprint from Yearbook of the Department of Agriculture for 1899.

"Crimson Clover Seed," by Edgar Brown; Circular Letter, August 18th, 1904, Seed Laboratory.

"Seed Testing; Directions for Taking and Sending Samples," by Edgar Brown; Circular Letter, August 13th, 1903, Seed Laboratory.

Results of Purity and Germination Tests of Grass and Forage Plant
Seeds Collected by Chemical Department, Maryland Agricultural
College.

Laboratory Test No.	Kind of Seed.	Sold as	Name and Address of Seller.
17423	<i>Agrostis alba</i>	Redtop.....	Richards Bros., Cumberland, Md.
17446	" "	"	N. I. Gorsuch & Son, Westminster, Md.
17500	" "	"	E. P. Fitzgerald, Princess Anne, Md.
17493	" sp.	English Lawn Grass.	J. J. Hurlock, Snow Hill, Md.
16932	<i>Chaetochloa italica</i>	German Millet	E. W. Miller, Hagerstown, Md.
16933	" "	Hungarian Grass.	" " " "
16936	" "	" "	Reichard, Schindel & Co., Hagerstown, Md.
16941	" "	German Millet	J. J. Hurlock, Snow Hill, Md.
17421	" "	" "	P. L. Hargett & Co., Frederick, Md.
17424	" "	Millet.....	Richards Bros., Cumberland, Md.
17442	" "	"	Elevator Co., Taneytown, Md.
17455	" "	Hungarian Grass.	Griffith, & Turner Co., Baltimore, Md.
17461	" "	" "	O. N. Johnson & Co., Perryman, Md.
17462	" "	Millet.....	O. N. Johnson & Co., Perryman, Md.
17463	" "	"	Brumfield & Foster, Colora, Md.
17464	" "	Hungarian Grass.	Brumfield & Foster, Colora, Md.
17470	" "	German Millet	Gunby & Co., Salisbury, Md..
17479	" "	" "	J. M. Armstrong & Co., Northeast, Md.
17480	" "	Hungarian Grass.	J. M. Armstrong & Co., Northeast, Md.
17481	" "	German Millet	E. H. Gallaher, Cherry Hill, Md.

Tests by Mr. Edgar Brown, of Seed Laboratory, Bureau of Plant Industry, U. S. Department of Agriculture.

Laboratory Test No.	Price Paid per 100 Pounds.	RESULT OF PURITY TEST.				RESULT OF GERMINATION TEST.		
		Pure Seed. Per Cent. by Weight.	Inert Matter. Per Cent. by Weight.	Weed Seeds and Adul- terants. Per Cent. by Weight.	Number of Weed Seeds Per Pound.	Germinati'n of Pure Seed Per Cent.	Actual Value of Sample Per Cent. of Pure Seed That Will Grow.	Actual cost per 100 lbs. of Pure Seed That Will Grow.
17423	\$10.00	80.70	4.40	14.90a	11,793	87.25	70.41	\$ 14.20
17446	9.00	17.60	69.70	12.70b	156,035	1.25	.22	4.090.91
17500	8.00	79.50	3.80	16.70c	12,701	85.50	67.97	11.77
17493	25.00	25.00	59.00	16.00d	10,886	42.05	10.63	235.18
16932	2.75	99.00	.70	.30	1,996	29.00	28.71	9.58
16933	4.00	99.10	.80	.10	1,542	80.50	79.78	5.01
16936	3.00	99.50	.20	.30	1,270	76.00	75.62	3.97
16941	3.00	99.40	.12	.48	4,627	71.75	71.32	4.21
17421	2.50	96.70	1.70	1.60	8,255	77.50	74.94	3.34
17424	2.70	97.20	1.70	1.10	9,979	73.00	70.96	3.80
17442	2.50	99.20	.10	.70	5,625	69.00	68.45	3.65
17455	2.50	97.70	1.80	.50	4,808	75.25	73.52	3.40
17461	2.80	98.84	.86	.30	1,914	87.75	86.73	3.23
17462	2.40	100.00	.....	.....	.....	96.00	96.00	2.50
17463	3.00	99.74	.24	.02	91	90.75	90.51	3.31
17464	3.00	98.00	1.16	.84	7,167	75.50	73.99	4.05
17470	3.00	100.00	.....	.....	.....	91.00	91.00	3.30
17479	3.00	99.68	.32	.....	.....	84.25	83.98	3.57
17480	3.00	99.00	.50	.50	2,449	84.50	83.66	3.59
17481	3.00	99.48	.34	.18	1,914	90.00	89.53	3.35

a, Timothy, 14.5%. b, Timothy, 10.6%. c, Timothy, 16.4%. d, Timothy, 12%.

Laboratory Test No.	Kind of Seed.	Sold as	Name and Address of Seller.
17482	<i>Chaetochloa italica</i>	Hungarian Grass.	J. M. Campbell & Co., Port Deposit, Md.
17483	" "	German Millet	J. M. Campbell & Co., Port Deposit, Md.
17484	" "	" "	C. A. Benjamin & Co., Leslie, Md.
17485	" "	Hungarian Grass.	C. A. Benjamin & Co., Leslie, Md.
17488	" "	Millet	J. J. Hurlock, Snow Hill, Md.
17521	" "	"	Gunby & Co., Salisbury, Md..
16935	<i>Lactylis glomerata</i>	Orchard Grass	E. W. Miller, Hagerstown, Md.
16937	" "	" "	Reichard, Schindel & Co., Hagerstown, Md.
16942	" "	" "	Selby & Bishop, Snow Hill, Md.
17288	" "	" "	J. Bolgiano & Son, Baltimore, Md.
17418	" "	" "	J. E. Price & Co., Frederick, Md.
17434	" "	" "	W. A. Simpson & Son, Baltimore, Md.
17447	" "	" "	Wilson Buggy and Machine Co., Westminster, Md.
17450	" "	" "	Satterfield & Co., Hurlock, Md.
17473	" "	" "	J. Bolgiano & Son, Baltimore, Md.
17428	<i>Festuca elatior pratensis</i> ..	Meadow Fescue.	Nuttle Hardware Company, Denton, Md.
17289	<i>Lolium perenne</i>	English Rye Grass.	J. Bolgiano & Son, Baltimore, Md.
16938	<i>Medicago sativa</i>	Alfalfa.....	Reichard, Schindel & Co., Hagerstown, Md.
17281	" "	"	J. Bolgiano & Son, Baltimore, Md.
17420	" "	"	J. E. Price & Co., Frederick, Md.

Laboratory Test No.	Price Paid per 100 Pounds.	RESULT OF PURITY TEST.				RESULT OF GERMINATION TEST.		
		Pure Seed, Per Cent. by Weight.	Inert Matter, Per Cent. by Weight.	Weed Seeds and Adul- terants, Per Cent. by Weight.	Number of Weed Seeds Per Pound.	Germinati'n of Pure Seed Per Cent.	Actual Value of Sample Per Cent. of Pure Seed That Will Grow.	Actual Cost per 100 lbs. of Pure Seed That Will Grow.
17482	\$ 3.00	99.50	.22	.28	998	77.00	76.62	\$ 3.92
17483	3.00	99.24	.70	.06	454	83.00	82.37	3.64
17484	3.00	98.00	1.76	.24	726	91.25	89.43	3.35
17485	3.00	98.30	1.00	.70	2,449	88.25	86.75	3.46
17488	5.00	97.70	.50	1.80	1,361	73.50	71.81	6.96
17521	3.00	97.40	2.50	.10	1,451	80.50	78.41	3.83
16935	14.50	62.70	27.90	9.40	19,505	82.00	51.41	28.20
16937	15.00	73.75	25.55	.70	2,041	88.50	65.27	22.98
16942	19.64	78.00	22.00	.....	.....	85.50	66.69	29.45
17288	15.00	53.80	26.75	19.45e	.....	70.75	38.06	39.41
17418	14.00	38.10	27.90	34.00f	4,763	60.50	23.05	60.74
17434	12.50	63.60	36.20	.20	907	64.00	40.70	30.71
17447	15.00	33.50	38.20	28.30g	20,638	81.75	27.39	54.76
17450	15.00	37.25	29.75	33.00h	13,835	57.25	21.33	70.32
17473	15.00	54.60	26.15	19.25i	907	84.00	45.86	32.71
17428	13.00	95.50	4.40	.10	302	.25	.24	5.416.67
17289	8.00	82.70	2.90	14.40	21,772	36.50	30.19	26.50
16938	12.00	98.20	1.70	.10	454	61.50	60.39	19.87
17281	13.50	96.12	3.66	.22	2,994	60.25	57.91	23.31
17420	12.00	96.70	2.90	.40	1,361	67.75	65.51	18.32

e, Meadow Fescue, 18.9%. f, English Rye Grass, 20%. g, English Rye Grass, 21.55%. h, Meadow Fescue, 16.3%; English Rye Grass, 9.35%; Kentucky Blue Grass, 5.75%. i, Meadow Fescue, 18.65%.

Laboratory Test No.	Kinds of Seed.	Sold as	Name and Address of Seller.
17422	Medicago sativa	Alfalfa	Richards Bros., Cumberland, Md.
17429	" "	"	James Brian, Middle River, Md.
17433	" "	"	J. M. McCullough's Sons, Cincinnati, O.
17440	" "	"	Englar Bros. & Co., Linwood, Md.
17454	" "	"	Allen G. Quyum, Frederick, Md.
17478	" "	"	J. Bolgiano & Son, Baltimore, Md.
17495	" "	"	A. F. Huey, Massey, Md.
17525	" "	"	James Brian, Middle River, Md.
16930	Phleum pratense	Timothy	Geo. W. Biles & Son, Providence, Md.
16934	" "	"	E. W. Miller, Hagerstown, Md.
16943	" "	"	J. J. Hurlock, Snow Hill, Md.
16944	" "	"	Hastings & Timmons, Snow Hill, Md.
16945	" "	"	John I. Keas, Berlin, Md.
17282	" "	"	J. Bolgiano & Son, Baltimore, Md.
17414	" "	"	Ulle Bros., Beltsville, Md.
17419	" "	"	J. E. Price & Co., Frederick, Md.
17425	" "	"	T. H. Jarman & Son, Greensboro, Md.
17431	" "	"	James Brian, Middle River, Md.
17436	" "	"	C. E. Engel, Medford, Md.
17437	" "	"	E. O. Cash, Middleburg, Md. .

Laboratory Test No.	Price Paid per 100 Pounds.	RESULT OF PURITY TEST.				RESULT OF GERMINATION TEST.		
		Pure Seed. Per Cent. by Weight.	Inert Matter. Per Cent. by Weight.	Weed Seeds and Adul- terants. Per Cent. by Weight.	Number of Weed Seeds Per Pound.	Germinati'n of Pure Seed Per Cent.	Actual Value of Sample Per Cent. of Pure Seed That Will Grow.	Actual cost per 100 lbs. of Pure Seed That Will Grow.
17422	\$14.17	90.30	6.20	3.50	12,701	70.50	63.66	\$ 22.26
17429	13.00	84.62	12.88	2.50	7,167	75.00	63.47	20.48
17433	14.00	97.14	2.80	.06	635	79.25	76.98	18.19
17440	13.50	92.80	5.30	1.90	7,258	73.50	68.21	19.79
17454	17.00	99.24	.76	.....	.....	88.50	87.83	19.36
17478	13.50	91.32	8.44	.24	1,814	63.00	57.53	23.47
17495	13.33	93.48	4.18	2.34	4,264	67.50	63.10	21.13
17525	13.00	90.26	7.22	2.52	8,074	53.25	48.06	27.05
16930	6.25	97.30	1.80	.90	907	92.50	90.00	6.94
16934	5.00	99.50	.40	.10	1,139	92.50	92.04	5.43
16943	5.12	97.10	2.10	.80	7,938	87.25	84.72	6.0
16944	5.33	97.70	.80	1.50	5,670	85.50	83.53	6.38
16945	6.00	98.30	1.20	.50	4,536	88.75	87.24	6.88
17282	4.00	99.35	.35	.30	680	75.50	75.01	5.33
17414	5.44	99.10	.60	.30	1,361	96.50	95.63	5.69
17419	5.00	98.50	.60	.90	5,443	88.25	86.93	5.7
17425	5.00	99.00	.40	.60	1,587	84.50	83.66	5.98
17431	5.00	99.25	.35	.40	4,309	87.25	86.60	5.77
17436	5.00	99.45	.25	.30	680	86.50	86.02	5.81
17437	5.00	99.80	.10	.10	680	93.00	92.81	5.39

Laboratory Test No.	Kind of Seed.	Sold as	Name and Address of Seller.
17443	Phleum pratense.....	Timothy.....	Reindollar & Co., Taneytown, Md.
17449	" "	"	N. I. Gorsuch & Son, Westminster, Md.
17451	" "	"	J. H. Blocher, Alesia, Md....
17457	" "	"	Isaac S. Lee, Perryman, Md..
17458	" "	"	O. N. Johnson & Co., Perryman, Md.
17465	" "	"	Brumfield & Foster, Colora, Md.
17466	" "	"	H. T. Brown, Liberty Grove, Md.
17469	" "	"	Gunby & Co., Salisbury, Md..
17476	" "	"	J. Bolgiano & Son, Baltimore, Md.
17486	" "	"	F. J. Short, Double Pipecreek, Md.
17490	" "	"	J. J. Hurlock, Snow Hill, Md.
17491	" "	"	Buckley & Cash, Union Bridge, Md.
17496	" "	"	E. P. Fitzgerald, Princess Anne, Md.
17497	" "	"	Hanway, Barnes & McComas, Bel Air, Md.
17499	" "	"	James Brian, Middle River, Md.
17501	" "	"	W. A. Simpson & Co., Baltimore, Md.
17502	" "	"	A. F. Huey, Massey, Md.....
17503	" "	"	C. H. Hall & Son, Bel Air, Md.
17504	" "	"	E. Tucker & Co., Forest Hill, Md.
17524	" "	"	O. N. Johnson & Co., Perryman, Md.

Laboratory Test No.	Price Paid per 100 Pounds.	RESULT OF PURITY TEST.				RESULT OF GERMINATION TEST.		
		Pure Seed. Per Cent. by Weight.	Inert Matter. Per Cent. by Weight.	Weed Seeds and Adul- terants. Per Cent. by Weight.	Number of Weed Seeds Per Pound.	Germinati'n of Pure Seed Per Cent.	Actual Value of Sample Per Cent. of Pure Seed That Will Grow.	Actual cost per 100 lbs. of Pure Seed That Will Grow.
17443	\$ 5.00	99.15	.40	.45	907	93.00	92.21	\$ 5.42
17449	5.50	99.00	.80	.20	1,588	91.50	90.59	6.07
17451	5.00	98.20	1.20	.60	3,175	90.25	83.23	6.01
17457	4.77	97.15	2.05	.80	3,628	92.00	89.38	5.33
17458	4.66	98.05	1.05	.90	3,402	88.25	86.53	5.39
17465	5.00	99.25	.65	.10	907	89.00	83.33	5.66
17466	6.00	97.45	1.45	1.10	5,897	87.25	85.03	7.06
17469	6.00	98.80	.50	.70	680	84.00	82.99	7.23
17476	4.00	99.15	.60	.25	680	84.25	83.53	4.79
17486	8.00	95.90	2.28	1.82	6,123	89.50	85.83	9.31
17490	5.00	96.35	2.65	.10	3,402	69.75	67.20	7.44
17491	5.00	95.20	3.40	1.40	5,216	68.75	65.45	7.64
17496	5.50	97.15	1.00	1.85	6,123	89.00	86.46	6.36
17497	5.00	98.95	.85	.20	907	84.50	83.51	5.99
17499	5.00	95.15	2.70	2.15	6,804	81.25	77.31	6.47
17501	4.00	95.60	3.30	1.10	7,484	87.00	83.17	4.81
17502	5.00	97.60	.95	1.45	1,361	86.25	84.18	5.94
17503	4.25	99.05	.65	.30	3,175	77.50	76.76	5.54
17504	4.25	98.45	.35	1.20	2,948	86.25	84.91	5.01
17524	4.00	98.50	.85	.65	4,309	88.50	87.17	4.59

Laboratory Test No.	Kind of Seed.	Sold as	Name and Address of Seller.
17286	<i>Poa compressa</i>	Canada Blue-grass.	J. Bolgiano & Son, Baltimore, Md.
16939	<i>Poa pratensis</i>	Kentucky Bluegrass.	Reichard, Schindel & Co., Hagerstown, Md.
16940	" "	" "	J. J. Hurlock, Snow Hill, Md.
17287	" "	" "	J. Bolgiano & Son, Baltimore, Md.
17415	" "	" "	P. L. Hargett & Co., Frederick, Md.
17416	" "	" "	J. E. Price & Co., Frederick, Md.
17426	" "	" "	T. H. Jarman & Son, Greensboro, Md.
17472	" "	" "	Gunby & Co., Salisbury, Md..
17492	" "	" "	" " " " ..
16928	<i>Trifolium hybridum</i>	Alsike Clover.	Geo. W. Biles & Son, Providence, Md.
17284	" "	" "	J. Bolgiano & Son, Baltimore, Md.
17413	" "	" "	Reindollar & Co., Taneytown, Md.
17427	" "	" "	Nuttle Hardware Company, Denton, Md.
17435	" "	" "	F. W. Bolgiano & Co., Washington, D. C.
17441	" "	" "	Englar Bros., & Co., Linwood, Md.
17447	" "	" "	J. Bolgiano & Son, Baltimore, Md.
16931	<i>Trifolium incarnatum</i>	Crimson Clover.	E. W. Miller, Hagerstown, Md.
16946	" "	Scarlet Clover.	E. S. Furbush, Berlin, Md....
17283	" "	Crimson Clover.	J. Bolgiano & Son, Baltimore, Md.
17453	" "	" "	Allen G. Quyum, Frederick, Md.

Laboratory Test No.	Price Paid per 100 Pounds.	RESULT OF PURITY TEST.				RESULT OF GERMINATION TEST.		
		Pure Seed. Per Cent. by Weight.	Inert Matter. Per Cent. by Weight.	Weed Seeds and Adul- terants. Per Cent. by Weight.	Number of Weed Seeds Per Pound.	Germinati'on of Pure Seed Per Cent.	Actual Value of Sample Per Cent. of Pure Seed That Will Grow.	Actual cost per 100 lbs. of Pure Seed That Will Grow.
17286	\$ 8.00	80.00	18.00	2.00	4,082	30.75	24.06	\$ 32.52
16939	15.00	27.80	72.00	.20	907	29.25	8.13	184.50
16940	9.64	65.40	34.40	.20	1,814	3.50	2.29	420.96
17287	10.00	78.50	20.40	1.10	7,257	51.75	40.62	24.62
17415	13.21	73.90	25.30	.80	5,443	73.25	54.13	24.40
17416	13.00	79.30	20.50	.20	1,361	72.50	57.49	22.61
17426	15.00	37.00	60.40	2.60	7,257	56.25	20.81	72.08
17472	12.00	4.80	95.20					
17492	12.50	32.40	67.40	.20	907	.50	.16	7,812.50
16928	15.00	94.50	2.25	3.25	454	77.00	72.77	20.61
17284	14.00	94.30	2.90	2.80	8,391	92.25	86.99	16.09
17413	14.50	80.95	7.80	11.25j	7,711	74.50	60.31	24.04
17427	13.33	96.90	2.40	.70	3,266	87.25	84.55	15.77
17435	.....	96.75	.25	3.00	8,164	85.75	82.96	.....
17441	15.00	84.25	5.20	10.55k	4,082	79.75	67.19	22.32
17447	14.00	88.85	.50	10.65l	8,165	91.25	80.53	17.38
16931	8.00	69.30	3.60	.10	272	90.00	86.67	9.23
16946	6.00	96.00	2.80	1.20	4,082	95.00	91.20	6.58
17283	5.00	95.10	4.80	.10	454	73.50	69.90	7.15
17453	12.00	96.04	3.34	.62	5,262	91.00	87.40	13.73

j, White Clover, 6.35%. Timothy, 3.15%. k, White Clover, 6.3%. Timothy 3%.

l, White, Clover, 8.15%.

Laboratory Test No.	Kinds of Seed.	Sold as	Name and Address of Seller.
17475	Trifolium incarnatum.....	Crimson Clover.	J. Bolgiano & Son, Baltimore, Md.
17494	" "	" "	J. J. Hurlock, Snow Hill, Md.
17498	" "	" "	Gunby & Co., Salisbury, Md..
17526	" "	" "	E. P. Fitzgerald, Princess Anne, Md.
17438	Trifolium medium.....	Sapling Clover.	Reindollar & Co., Taneytown, Md.
16929	Trifolium pratense.....	Red Clover...	Geo. W. Biles & Son, Provi- dence, Md.
17285	" "	" " ...	J. Bolgiano & Son, Baltimore, Md.
17417	" "	Clover.....	J. E. Price & Co., Frederick, Md.
17430	" "	Red Clover...	James Brian, Middle River, Md.
17432	" "	" " ...	F. W. Bolgiano & Co., Wash- ington, D. C.
17439	" "	" " ...	P. B. Myers, Union Bridge, Md.
17444	" "	" " ...	Samuel Wagner, Wakefield, Md.
17445	" "	" " ...	C. W. Fritz, Medford, Md....
17448	" "	" " ...	N. I. Gorsuch & Son, West- minster, Md.
17452	" "	" " ...	J. H. Blocher, Alesia, Md....
17456	" "	" " ...	Griffith & Turner Co., Balti- more, Md.
17459	" "	" " ...	O. N. Johnson & Co., Perry- man, Md.
17460	" "	" " ...	Isaac S. Lee, Perryman, Md..
17467	" "	" " ...	Brumfield & Foster, Colora, Md.
17468	" "	" " ...	H. T. Brown, Liberty Grove, Md.

Laboratory Test No.	Price Paid per 100 Pounds.	RESULT OF PURITY TEST.				RESULT OF GERMINATION TEST.		
		Pure Seed. Per Cent. by Weight.	Inert Matter. Per Cent. by Weight.	Weed Seeds and Adul- terants. Per Cent. by Weight.	Number of Weed Seeds Per Pound.	Germinati'n of Pure Seed Per Cent.	Actual Value of Sample Per Cent. of Pure Seed That Will Grow.	Actual cost per 100 lbs. of Pure Seed That Will Grow.
17475	\$ 5.00	95.24	3.92	.84	544	99.50	94.76	\$ 5.28
17494	8.00	92.94	6.44	.62	1,996	98.25	91.31	8.76
17498	6.00	95.14	3.68	1.18	2,903	93.75	89.19	6.73
17526	6.00	94.18	5.36	.46	1,996	97.75	92.06	6.52
17438	13.50	100.00	.....	.....	.....	91.25	91.25	14.79
16929	13.50	95.70	3.10	1.20	5,171	91.00	87.09	15.50
17285	13.50	98.40	1.60	.....	.....	77.00	75.77	17.82
17417	13.00	97.70	1.70	.60	2,631	91.25	89.15	14.58
17430	13.50	87.50	6.00	6.50	28,576	86.00	75.25	17.94
17432	11.50	97.80	1.90	.30	544	92.25	90.22	12.75
17439	12.50	81.30	6.50	12.20	49,713	75.00	60.98	20.50
17444	13.00	95.60	2.20	2.20	17,959	87.50	83.65	15.54
17445	10.00	96.42	2.86	.72	3,447	83.50	80.51	12.42
17448	14.00	84.76	8.70	6.54 ^m	9,888	90.75	76.92	18.20
17452	11.50	73.12	12.58	14.30	54,705	74.00	54.11	21.25
17456	13.00	97.92	1.64	.44	998	92.25	90.33	14.39
17459	12.50	94.60	.86	4.54	47,686	87.25	82.54	15.14
17460	13.00	82.96	7.76	9.28	13,517	82.50	68.44	18.99
17467	14.00	91.00	5.72	3.28	9,616	80.50	73.26	19.11
17468	13.00	95.56	3.64	.80	2,268	90.25	86.24	15.07

m, Alsike Clover, 3.58%.

Laboratory Test No.	Kind of Seed.	Sold as	Name and Address of Seller.
17471	Trifolium pratense.....	Red Clover...	Gunby & Co., Salisbury, Md.
17474	" "	" " ...	J. Bolgiano & Son, Baltimore, Md.
17487	" "	" " ...	J. J. Hurlock, Snow Hill, Md.
17523	" "	" " ...	James Brian, Middle River, Md.
17280	Trifolium repens.....	White Clover.	J. Bolgiano & Son, Baltimore, Md.
17489	Secale cereale.....	Rye.....	J. J. Hurlock, Snow Hill, Md.
17522	" "	"	Gunby & Co., Salisbury, Md.

Laboratory Test No.	Price Paid per 100 Pounds.	RESULT OF PURITY TEST.				RESULT OF GERMINATION TEST.		
		Pure Seed. Per Cent. by Weight.	Inert Matter. Per Cent. by Weight.	Weed Seeds and Adul- terants. Per Cent. by Weight.	Number of Weed Seeds Per Pound.	Germinati'n of Pure Seed Per Cent.	Actual Value of Sample Per Cent. of Pure Seed That Will Grow.	Actual cost per 100 lbs. of Pure Seed That Will Grow.
17471	\$12.30	91.12	1.08	7.80	29,942	79.75	72.67	\$ 16.93
17474	13.50	95.22	3.72	1.06	4,264	85.50	81.41	16.58
17487	15.00	70.62	14.78	14.60n	28,213	57.75	39.24	38.23
17523	13.00	90.60	5.80	3.60	26,807	78.50	71.12	18.28
17280	25.00	94.80	1.85	3.35	16,556	82.75	78.45	31.87
17489	2.00	97.91	1.98	.11	136	98.50	96.44	2.07
17522	2.00	97.18	1.54	1.28	363	71.00	69.00	2.90

n, Timothy, 13.86%.

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